

REMARKS

This application has been amended in a manner that is believed to place it in condition for allowance at the time of the next Official Action.

Claims 20-65 are pending in the application. Claims 20-48 have been amended to address formal matters. As all the changes are of a formal nature, applicants respectfully submit that no new matter has been added and that all the changes to the claims are non-narrowing in scope. Claims 1-19 have been canceled. New claims 49-65 have been added. Claims 49-66 are method claims directed to the subject matter of previously pending claims 1-19. Thus, no new matter has been added.

In the outstanding Official Action, claims 9, 15, 23, 30, 33, 39 and 47 were objected to for reciting "preferable" ranges. However, claims 9, 15, 23, 30, 33, 39 and 47 have been amended so that the "preferable" ranges are no longer recited.

Claims 1-19 were rejected under 35 USC §112, second paragraph, for allegedly being indefinite. In addition, claims 1-19 were rejected under 35 USC §101 for encompassing non-statutory subject matter.

Claim 22 has been drafted as an independent claim.

In imposing the rejections, the Official Action alleged that claims 1-19 were "use" claims. However, as noted above, claims 1-19 have been canceled.

Thus, in view of the above, applicants respectfully request that the rejections be withdrawn.

Claims 20-24 were rejected under 35 USC §102(b) as allegedly being anticipated by U.S. Patent No. 5,795,559 to PINNAVAIA et al. This rejection is respectfully traversed.

PINNAVAIA relates to the synthesis of crystalline, porous inorganic oxide materials possessing a disordered assembly of worm-like channels. In particular, PINNAVAIA relates to such materials where the formation of a mesoporous structure is accomplished by a self-assembly mechanism involving complexation and/or hydrogen (H) bonding between aqueous or alcoholic emulsions of various nonionic polyethylene oxide based surfaces and various neutral inorganic oxide precursors. This is followed by hydrolysis and subsequent condensation of hydrolysis products at ambient reaction temperatures.

There are distinct differences between the mesoporous silicon-based catalytic system disclosed by PINNAVAIA and the claimed invention. The catalytic system disclosed by PINNAVAIA is a precipitate (see, for example, column 14, line 18).

However, the catalytic system of the claimed invention is not in the form of precipitate but a gel (see [0039] on page 3 of U.S. 2006/0148640).

A process parameter that enables gel formation rather than precipitation is the removal of the ethanol formed by the hydrolysis of tetraethoxysilane (TEOS). The ethanol produced is removed from the medium under dynamic vacuum. The organization and high concentration of surfactant are maintained, and the direct liquid crystal templating process produces a solidified gel product, and not a precipitate. The presence of ethanol in the reaction mixture disorders the medium, and the initial surfactant concentration is not maintained, leading to a modification of the phase diagram. There are thus two effects of not removing the ethanol produced: i) reduction of the surfactant concentration, and ii) disordering of the liquid crystal arrangement. The result of the former is that even under condition where high initial concentrations of surfactant are used, the product precipitates from solution, and is not obtained as a gel as in the present invention.

Thus, applicants respectfully request that the anticipation rejection be withdrawn.

Claims 1-19 and 25-28 were rejected under 35 USC §103(a) as allegedly being unpatentable over U.S. Patent No. 5,795,559 to PINNAVAIA et al. in view of U.S. Patent No. 6,204,424 to YADAV et al.

As noted above, PINNAVAIA fails to disclose or suggest the claimed invention. In an effort to remedy the deficiencies

of PINNAVAIA, for reference purposes, the Official Action cites to YADAV.

YADAV relates to an acidic mesoporous solid catalyst comprising a hexagonal mesoporous silica having sulphated metal oxide of metal selected from the group consisting of zirconium, titanium, iron, aluminum, tin and bismuth incorporated therein and having a surface area in the range 200-500 m<sup>2</sup>/g; a pore volume in the range of 0.1-0.3 ml/g; a pore diameter in the range of 25-35 Å and XRD peak at 2 theta angle being 0-3. The acidic mesoporous solid catalyst has an elemental constitution of silicon (Si) 50-60 wt%, zirconium (Zr) 40-50 wt% and sulphur (S) 5-10 wt%.

In particular, YADAV seeks to provide pure dimmers by using monomers (column 2, lines 61-62). The claimed invention claims a process for the oligomerization of light olefins, typically a light olefin feedstock (see [0073] on page 5). A light olefin feedstock is a mixture of compounds, i.e., not pure monomers.

Moreover, the oligomerization process of the claimed invention can provide paraffins substantially free from heteroelements, from (hetero)aromatic compounds and from compounds and derivatives of sulphur and nitrogen (see [0012] on page 1). Low branched paraffins are obtained that form a C<sub>10</sub>-C<sub>20</sub> diesel fraction, resulting in a diesel fuel having a high Cetane Number (see [0013] on page 1).

Aiming at preparing diesel fuel fractions having a high Cetane Number, the skilled artisan would not have been led to the present invention by using a catalytic system in the form of precipitate (i.e., PINNAVAIA) in a process specifically devoted to the pure dimerization of pure monomers (i.e., YADAV) to arrive at the present invention.

Thus, applicants respectfully request that the obviousness rejection be withdrawn.


In view of the present amendment and the foregoing remarks, therefore, applicants believe that the present application is in condition for allowance at the time of the next Official Action. Allowance and passage to issue on that basis is respectfully requested.

Please charge the fee of \$200 for one extra independent claim added herewith to Deposit Account No. 25-0120.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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